

The Essence of Capacitor

THE SORTS OF DIELECTRIC MATERIAL FROM THEIR COMPONENTS.

- 1) Ceramic
- 2) Tantalum
- 3) Electrolytic Aluminum
- 4) Polymer, OS- Con etc.

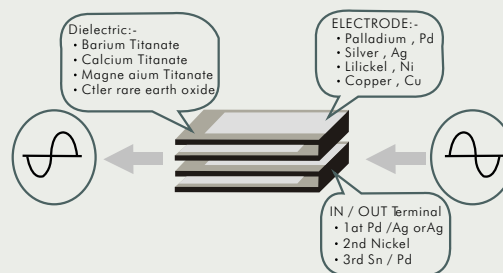
Different type of capacitor has its characteristics and suitable for specific applications, but NOT for unspecified.

HOW IS A MULTI LAYER CERAMIC CAPACITOR FORMED

A number of conductive electrodes lay-down(Pd / Ag / Ni / Cu) separated by an insulating dielectric sheet

CAPACITORS IN SERIES

- 1) $1/C_{\text{total}} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + \dots + \frac{1}{C_n}$
- 2) Respective current equally.



CAPACITORS IN PARALLEL

- 1) $C_{\text{total}} = C_1 + C_2 + \dots + C_n$
- 2) Respective voltage is equally.

STANDARD UNIT OF CAPACITANCE IS INDICATED AS "F OR FARAD"

$$\mu F = \text{micro Farad} = 10^{-6}$$

$$nF = \text{nano Farad} = 10^{-9}$$

$$pF = \text{pico Farad} = 10^{-12}$$

VOLTAGE AND AC

As a general rule, AC must not exceed 10% to the rated DC value.

If the AC voltage is too strong to the capacitor, the inner dielectric would heat-up and dissipation become an issue. Unusual AC spikes or surges will cause over heating and the dielectric would be ruptured or even on fire, This design rule should be strictly followed, particularly in the application above 1KHz switching frequency.